BellSouth Telecommunications, Inc.
Georgia Public Service Commission
Docket No. 6863-U
Affidavit of William N. Stacy
Exhibit WNS-7

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BellSouth Telecommunications, Inc.
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BellSouth – Parsed CSR Prototype

BellSouth Parsed CSR Function and TAG API Integration Analysis Report

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1 Introduction

BellSouth engaged _____ to develop a working prototype that demonstrates the capability for a client application to integrate with BellSouth's parsed CSR function via the Telecommunication Access Gateway (TAG) API interface. _____ was required to develop this prototype using documentation and other BellSouth testing information available to Competitive Local Exchange Carriers (CLEC).

The specifications provided to _____ were as follows:

1. Develop a working prototype to integrate with Bellsouth's parsed CSR function.
2. Develop prototype using CLEC accessible information located on the BellSouth Interconnection web site (http://interconnection.bellsouth.com/carriertypes/lec/html/eiitd.html).
3. Prototype should demonstrate the following 3 Local Service Request (LSR) order types:
    a. Port/Loop Combo
    b. Resale
    c. Loop
4. Prototype should access the parsed CSR function through the CLEC Application Verification Environment (CAVE) TAG API interface.
5. Prototype should auto-populate and LSR and write parsed CSR data fields to a database to simulate a back office system. No order change or submission capability was in scope for this prototype.
6. Prototype should be accessible independent of a user's physical location.

_____ successfully developed a web-based application prototype in compliance with the above specifications. Based on the success of this development, _____ determined that BellSouth provides sufficient information to enable a CLEC or Vendor to integrate with the TAG interface. _____ also determined the parsed CSR function was operational when accessed via the CAVE TAG API. The process to complete this prototype is outlined in section 2 of this document.

2 Process and References

2.1 Process Overview

_____ organized a core team to engage in a rapid development process and deliver this prototype. This core team consisted of resources with specialized skill sets that applied across specific tasks and phases of the software development lifecycle. The team had experience in the following areas: Oracle DBA, JAVA & C++ ORB development, J2EE JAVA development, Technical Architecture, project management, and communication industry knowledge. Note: The developer responsible for developing the ORB layer that integrates with the TAG API had exposure to this type of development but had never actually developed ORB layer to integrate with TAG API before this project. All development was done from scratch (i.e. there was no re-use of code).

The following sections outline the specific steps _____ took to deliver this solution. The high level process to deliver this prototype solution was to organize team, understand requirements, gather information from BellSouth website, decide on platform, submit required CAVE testing paper work to BellSouth, design and develop solution using TAG API/Guide and other online documentation, follow test plan provided by BellSouth, and leverage the knowledge of the CLEC CAVE helpdesk support to assist in troubleshooting testing and connectivity problems.

During this development process, BellSouth offered the service of speaking with a dedicated CAVE testing manager and CLEC CAVE helpdesk to answer questions. _____ found the CLEC helpdesk support team to be very helpful in answering CLEC CAVE testing process questions, providing direction to documentation, and troubleshooting technical questions.

2.2 Timeline & Milestones

December 7 – 9	• _____ leadership meeting to discuss project • Key resources for core team identified
December 10	• _____ core team kickoff meeting • Researched online BellSouth documentation
December 11	• Data mapping complete • Database modeling complete
December 12	• Platform identified and required software installed • Object oriented design complete
December 13	• _____ submitted TAG Profile Request form and EI Business Survey to BellSouth • Database Manager Class complete • JAVA and C++ ORB complete • Database PL/SQL Work complete • User Interface Template complete
December 14	• _____ CAVE testing kickoff meeting held • _____ - BellSouth Test Agreement signed • _____ Formal Test Plan with test data received from BellSouth
December 15	• JSP and Servlet JAVA objects complete • Added approved test data received from BellSouth into prototype (JSP) • Assembly Test complete • Application Connectivity Test with support of CLEC CAVE Helpdesk complete
December 16	• Product Test complete • Internal _____ Prototype Demonstration complete
December 17	• Second Application Connectivity Test with support of CLEC CAVE Helpdesk complete (accessed BellSouth from different IP address) • Client (BellSouth) Prototype Demonstration complete
December 18 - 20	• _____ parsed CSR documentation completed

2.3 Planning & Analysis

The following tasks were completed during the planning & analysis phase:

Identify Requirements	_____ project manager held kickoff meeting with team to explain the requirements for delivery as outlined in section 1 of this document.
Identify Reference Materials	The team researched and identified key reference material available on the BellSouth interconnection website. See section 2.9 of this document for a list of all documentation used in this project.
Identify Platform	_____ core team meeting held to determine the best platform for delivering web-based solution in rapid development mode. This solution was developed using a Microsoft NT platform. Below is the rationale and references used in this decision: 1. Reviewed TAG API documentation 2. Speed of development 3. Ease of development 4. More cost efficient solution 5. Availability of software tools for development.
BellSouth CAVE Testing Paperwork Completed	BellSouth CAVE testing contact sent _____ Project Manager two forms required for a CLEC to gain access to CAVE. The forms were: 1. EI_Business_Survey – This form required the CLEC to identify what type of testing was requested. 2. Tag Profile Request Form - This form required the CLEC to fill out information need to create a profile in CAVE environment. The basic information requested is the IP and Hostname of the interfacing CLEC application. Both of these forms are available on the BellSouth Interconnection website.
BellSouth - _____ CAVE Testing Kickoff Meeting	_____ project manager and developer participated in BellSouth CAVE kickoff meeting with BellSouth Senior Test Manager, CLEC Helpdesk Support representatives, and CAVE support representatives. The outcome of this meeting was: 1. High-level testing process and connectivity requirements were communicated to _____. 2. BellSouth gathered key information needed to create BellSouth and _____ Test Agreement. 3. Contact information for the CAVE CLEC helpdesk provided. Paperwork was sent and received via email with BellSouth.

Data Mapping	The _____ team used documentation available on the BellSouth Interconnection website to complete the data mapping task. The following steps were taken: 1. Downloaded the manual LSR form. 2. Reviewed the data returned from the TAG 7.7.0.1 API by downloading the associated TAG API Guide. 3. Mapped the data fields returned in the parsed CSR section of the TAG API to data fields on the LSR form.

2.4 Design

The following tasks were created in the design phase:

Configured Hardware Asset for development	Referenced the TAG API Guide 7.7.0.1 Part A for software requirements. Loaded the following software: • Windows NT 2000 • Windows NT 2000 Patch • Orbix 3.0.1 • Orbix Patch 44 • OrbixWeb 3.1 • TAG API 7.7.0.1 • Oracle 8i • Jbuilder Enterprise Edition (this has web server and application server built in) • Visual Studio 6
Completed Object Oriented Design	Developed the Object Oriented Design using the TAG API Guide and TAG API Client Download for NT. Below are the steps used to create OO design: 1. Reviewed TAG API Client Download IDL 2. Created and "entity" for every "List" in the TAG API 3. Object Model derived from entities.
Database Model Built	Oracle DBA created a database model by referencing the data returned from the parsed CSR section in TAG API Guide and the Object Oriented Design model.

2.5 Construction

The following tasks were completed in the construction phase:

User Interface Template Complete	Used the online LSR form available on the BellSouth Interconnection website as reference while building the user interface screens. Developer also used the BellSouth Business Rules for Local Ordering – Data Element Dictionary TCIF 9/LSOG4 to size the data field (lengths).

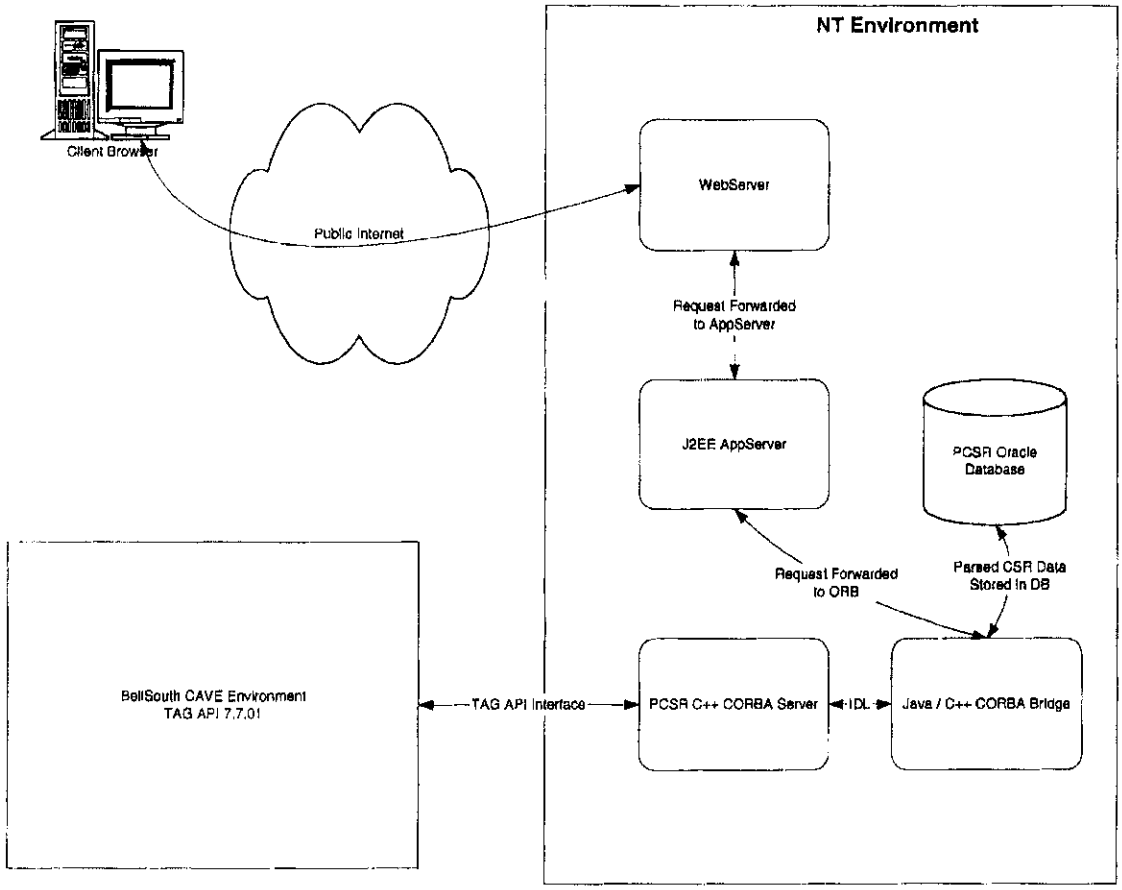
Database Built	The following steps were taken to build database: 1. Created database instance 2. Created application user PCSR on DB instance 3. Applied database schema completed in analysis phase to PCSR instance 4. Created sequences to auto PK generation 5. Created PL/SQL procedures to insert data into tables and return PK on those records The format of data returned from the TAG API was the referenced when building database.
Database Manager Class Created	Created JAVA code to invoke PL/SQL procedures on PCSR instance.
C++ ORB Completed to Interface with TAG API	The following steps were taken to create the C++ ORB layer which is the interface with the TAG API: 1. Compiled TAG API IDL to generate C++ header and source files 2. Created Visual C++ project 3. Configured project compiler and linker switches based on TAG API recommendations 4. Configured project to use TAG API libraries during linking 5. Created C++ source files to interface with TAG API 6. Built C++ ORB The TAG API Guide 7.7.0.1 Part A and TAG API Download for NT were used to complete this task.
JAVA ORB Completed	The following steps were taken to generate the JAVA ORB layer: 1. Compiled TAG API IDL to generate JAVA source files 2. Created Jbuilder test project 3. Configured project to include CORBA generated source files for TAG API 4. Created JAVA source files to communicate with C++ ORB layer.
JSP's and Servlet Complete	The following steps were used to generate the presentation layer (JSP's and Servlet): 1. Used the Object Oriented Design Model and HTML templates to create and build JSP files for Login, Control, and Display. 2. Created a servlet to manage HTTP flow. 3. Used data mapping analysis task to connect JSP fields to CORBA returned values.

2.6 Testing

The following tasks were completed in the testing phase:

Test Plan	_____ received an official Test Plan from BellSouth CLEC Helpdesk contact. Inputs for creating this plan were the two forms _____ completed in the analysis phase. The test plan included 10 test cases that met _____ parsed CSR testing request. The test cases include the appropriate TAG API input parameters and associated TAG API output. The Test Plan also documented the process for conducting the first test and specific test phases.
Assembly Test	_____ used the xstTagClient to test data flow from the presentation layer JAVA objects, to the ORB layer, and to the TAG API. The xstTagClient is part of the TAG 7.7.0.1 Client download for NT.
Application Connectivity Test	The following steps were taken to complete the Application Connectivity Test: 1. Incorporated 10 test cases provided by BellSouth into prototype (JSP). 2. Notified the CLEC CAVE Helpdesk of our test as required by the Test Plan. 3. CAVE Helpdesk monitored and supported our test.
Product Test	The _____ Team competed product testing by validating all links, images and parsed CSR scenarios (TN and service type combinations) were successful.

2.7 Data Flow Model



2.8 Issue Log

_____ documented the following issues while developing this prototype. While the following issues did result from incorrect BellSouth TAG API documentation, the _____ team was able to resolve issues by independent corrective action or contacting the CAVE helpdesk.

TAG API returning field that exceeds maximum field length according to BellSouth documentation: The "Feature Detail" field should be a maximum of 24 characters according to BellSouth Business Rules for Local Ordering – Data Element Dictionary TCIF 9/LSOG 4 (Field Lengths). The database was sized accordingly. The TAG API is returning 51 characters in this field.	Increased the size of the DB field.
Discrepancy between TAG API Guide and actual API: The xstaCustomerRecord layout in the requirements document does not match the actual layout in the TAG API. Realized this while trying to compile the C++ ORB which connects to TAG. Checked the xstaCustomerRecord.h shipped with the TAG API 7.7.0.1. The discrepancy was in the listings section. There is an additionalListingData section within the listings section. The actual API shows that the YPH can exist multiple times as opposed to the doc which says it only appears one time.	Used the information from the TAG API header file rather than the TAG API doc.
TAG Trace log: Getting the client to log the TAG trace was a big problem. According to the TAG API doc, all we had to do was set the XST_TRACE_DIR environment variable. We followed the instructions but no trace was generated.	Uses the XSTA_TRACE environment variable. Trace output was used to verify accuracy of information displayed on JSP.
Cannot access TAG API Online Info: TAG API Information link requires a username and password.	Contacted BellSouth CAVE test manager who sent _____ username and password.

Incorrect BellSouth Documentation: TAG Config File setup on Windows 2000 The following setup parameters were received to configure the TAG API to point to BellSouth. The discrepancies/correction are marked in **BOLD**.	Below is text from email _____ received from the BellSouth CAVE Helpdesk: 4. Modify your $ORBIX_HOME/cfg/orbix.cfg file as follows: **4. Modify your $ORBIX_HOME/config/common.cfg file as follows.** a) IT_DAEMON_PORT 1570 b) IT_DAEMON_SERVER_BASE 28100 c) IT_DAEMON_SERVER_RANGE 300 **# This env has to be ADDED, not MODIFIED.** d) IT_LOCAL_DOMAIN <must be left blank>

2.9 References

The following references were used by _____:

Electronic Interface Implementation & Testing Documents http://www.interconnection.bellsouth.com/carriertypes/lec/html/eiitd.html
Electronic Interface Business Survey http://www.interconnection.bellsouth.com/carriertypes/lec/EIITD/EI_Business_Survey.doc
TAG Profile Request Form: http://www.interconnection.bellsouth.com/carriertypes/lec/EIITD/tag_profile_request.doc
Electronic Interface Testing Guidelines: http://www.interconnection.bellsouth.com/carriertypes/lec/EIITD/EI_Test_Guidelines.pdf
Electronic Interface and Upgrade Communication Plan: http://www.interconnection.bellsouth.com/carriertypes/lec/EIITD/EI_Implemen_Upgrade.pdf
Copy of: Electronic Interface Test Agreement: http://www.interconnection.bellsouth.com/carriertypes/lec/EIITD/EI_Test_Agreement.pdf
TAG API Reference Guide A – Release 7.7.01 December, 2001 http://www.interconnection.bellsouth.com/api/TAGAPIGUIDE7701A.doc
TAG Security Credentials General Information: http://www.interconnection.bellsouth.com/oss/tag/tag-scgi.pdf
BellSouth Posing Version 0.1 CAVE Testing: API Release 7.7.01 (7.55 Mb) for NT (.zip file)

	BellSouth Parsed CSR

BellSouth EDI Specifications – TCIF 9: http://www.interconnection.bellsouth.com/guides/html/guides_leo4.html
LSR Form: http://www.interconnection.bellsouth.com/guides/leo/docs/cleclsr2.doc
BellSouth Business Rules for Local Ordering Coding Matrix TCIF 9/LSOG 4 – LSR (Field Lengths) http://www.interconnection.bellsouth.com/guides/leo/html/bbr-cm-LSR.html
BellSouth Business Rules for Local Ordering Coding Matrix TCIF 9/LSOG 4 - HUNTING http://www.interconnection.bellsouth.com/guides/leo/html/bbr-cm-LSR-Hunt.html
BellSouth Business Rules for Local Ordering – DATA ELEMENT DICTIONARY TCIF 9/LSOG 4 (Field Lengths) http://www.interconnection.bellsouth.com/guides/leo/html/gleoo027/indexf.htm

3 Conclusion

_____ successfully built a web-based client application to interface with the BellSouth's parsed CSR function available via the CAVE TAG API 7.7.0.1. This prototype development effort was completed using existing CLEC documentation available on the BellSouth interconnection website, communicating with the BellSouth CAVE test manager, and communicating with the CLEC CAVE helpdesk support team. Based on this prototype delivery, _____ determined that Bellsouth does provide sufficient references or documentation for CLECs to develop a client application to interface with the CAVE TAG API and utilize the parsed CSR function.

_____ does recommend the following changes that will make it easier for CLECs to integrate with the BellSouth TAG API and parsed CSR function:

- Review all TAG API documentation for accuracy. Specific inaccuracies in the TAG API documentation are outlined in section 2.8 of this report. These errors resulted in much delay in our development effort and were corrected by the expertise and analysis of the _____ developer or contacting the CLEC CAVE helpdesk.
- Provide documentation that specifically maps the data elements provided in the parsed CSR TAG API output to specific fields of the LSR form.
- Provide documentation that specifically outlines the entire CLEC CAVE testing process. Having this documentation would prevent the CLEC from making numerous requests for information to BellSouth.